



Revised 256-152div corrected in response to notice to comply.txt
SEQUENCE LISTING

<110> YOUNG, ANDREW A.
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PRICKETT, KATHRYN S.

<120> INOTROPIC AND DIURETIC EFFECTS OF GLP-1 AND GLP-1 AGONISTS

<130> 256-152DIV US

<140> 10/656,093

<141> 2003-09-05

<160> 75

<170> PatentIn Ver. 2.1

<210> 1

<211> 39

<212> PRT

<213> Heloderma horridum

<220>

<223> Exendin-3

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His Ser Asp Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

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<213> Heloderma suspectum

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<223> Exendin-4

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 3

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<212> PRT

<213> Homo sapiens

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<223> GLP-1

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<400> 3
His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15
Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
20 25 30

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exendin agonist

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<223> His, Arg or Tyr

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<223> Ser, Gly, Ala or Thr

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<222> (3)
<223> Asp, Ala or Glu

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<223> Ala or Thr

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<223> Ala, Phe, Tyr or naphthylalanine

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<223> Thr or Ser

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<222> (9)
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<223> Ala, Leu, Ile, Val, pentylglycine or Met

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<222> (11)
<223> Ala or Ser

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<221> MOD_RES
<222> (12)
<223> Ala or Lys

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<223> Ala or Gln

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<223> Ala, Leu, Ile, pentylglycine, Val or Met

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<222> (15)...(17)
<223> Ala or Glu

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<223> Ala or Val

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<223> Ala or Arg

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<223> Ala or Leu

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<223> Phe, Tyr or naphthylalanine

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<223> Ile, Val, Leu, pentylglycine, tert-butylglycine or Met

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<223> Ala, Glu or Asp

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<223> Ala, Trp, Phe, Tyr or naphthylalanine

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<223> Ala or Leu

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<221> MOD_RES

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<223> Ala or Asn

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N-alkylpentylglycine or N-alkylalanine

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<222> (36)..(38)

<223> Pro, homoproline, 3Hyp, 4Hyp, thioproline, N-alkylglycine
N-alkylpentylglycine or N-alkylalanine

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N-alkylglycine, N-alkylpentylglycine or N-alkylalanine

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<223> provided no more than three of Xaa3, Xaa5, Xaa6, Xaa8,
Xaa10, Xaa11, Xaa12, Xaa13, Xaa14, Xaa15, Xaa16, Xaa17,

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Xaa19, Xaa20, Xaa21, Xaa24, Xaa25, Xaa26, Xaa27 or Xaa28
are Ala; and the compound is not exendin-3 or exendin-4

<220>

<223> this peptide may encompass 28-39 residues, wherein
residues 1-28 are constant and residues 29-39 may vary
in length according to the specification

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Xaa Xaa Xaa Gly Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Ala Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
20 25 30

Xaa Xaa Xaa Xaa Xaa Xaa Xaa
35

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GLP-1 agonist

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<223> C-term may be amidated

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly
20 25 30

<210> 6

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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn
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<220>

<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

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<223> C-term amidated

<400> 7

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
20 25

<210> 8

<211> 28

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<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

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<223> C-term amidated

<400> 8

His Ala Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
20 25

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GLP-1 agonist

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His Gly Glu Gly Ala Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
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<223> Description of Artificial Sequence: Exendin or
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<220>

<223> C-term amidated

<400> 10

His Gly Glu Gly Thr Ala Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

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<223> C-term amidated

<400> 11

His Gly Glu Gly Thr Phe Thr Ala Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
20 25

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His Gly Glu Gly Thr Phe Thr Ser Asp Ala Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
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GLP-1 agonist

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<400> 13

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ala Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
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GLP-1 agonist

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<223> C-term amidated

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Ala Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Ala Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Ala Glu Glu
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1

5

10

15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Ala Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Ala
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Ala Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
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1 5 10 15
Glu Ala Ala Arg Leu Phe Ile Glu Phe Leu Lys Asn
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15
Glu Ala Val Ala Leu Phe Ile Glu Phe Leu Lys Asn
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15
Glu Ala Val Arg Ala Phe Ile Glu Phe Leu Lys Asn
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Ala Phe Leu Lys Asn
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Ala Leu Lys Asn
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Ala Lys Asn
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
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Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Ala Asn
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Ala
20 25

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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro
35

<210> 29

<211> 38

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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
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Ser Gly Ala Pro Pro Pro
35

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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro
35

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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro
35

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<210> 32

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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro
35

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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro
35

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<212> PRT

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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser

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20 25 30

Ser Gly Ala
35

<210> 35
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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala
35

<210> 36
<211> 34
<212> PRT
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GLP-1 agonist

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<400> 36
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly

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GLP-1 agonist

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<400> 37
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
20 25 30
Ser Gly

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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30
Ser

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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
20 25 30
Ser

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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

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GLP-1 agonist

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<223> C-term amidated

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
20 25 30

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<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro
20 25 30

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GLP-1 agonist

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<400> 43

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro
20 25 30

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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly
20 25 30

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GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly
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GLP-1 agonist

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<400> 46

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly
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GLP-1 agonist

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<223> tPro

<220>

<221> MOD_RES

<222> (36)..(38)

<223> tPro

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<223> C-term amidated

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
20 25 30

Ser Gly Ala Xaa Xaa Xaa
35

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GLP-1 agonist

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<222> (36)..(38)

<223> tPro

<220>

<223> C-term amidated

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Xaa Xaa Xaa
35

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Revised 256-152div corrected in response to notice to comply.txt

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<223> NMeala

<220>

<223> C-term amidated

<400> 49

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
20 25 30

Ser Gly Ala Pro Pro
35

<210> 50

<211> 37

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>

<221> MOD_RES

<222> (31)

<223> NMeala

<220>

<221> MOD_RES

<222> (36)..(37)

<223> NMeala

<220>

<223> C-term amidated

<400> 50

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
20 25 30

Ser Gly Ala Xaa Xaa
35

<210> 51

<211> 37

<212> PRT

<213> Artificial Sequence

Revised 256-152div corrected in response to notice to comply.txt

<220>

<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>

<221> MOD_RES

<222> (31)

<223> hPro

<220>

<221> MOD_RES

<222> (36)..(37)

<223> hPro

<220>

<223> C-term amidated

<400> 51

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
20 25 30

Ser Gly Ala Xaa Xaa
35

<210> 52

<211> 36

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>

<221> MOD_RES

<222> (31)

<223> hPro

<220>

<221> MOD_RES

<222> (36)

<223> hPro

<220>

<223> C-term amidated

<400> 52

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
20 25 30

Ser Gly Ala Xaa
35

<210> 53

Revised 256-152div corrected in response to notice to comply.txt

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>

<223> C-term amidated

<400> 53

Arg Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala
35

<210> 54

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>

<223> C-term amidated

<400> 54

His Gly Asp Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly
20 25 30

<210> 55

<211> 28

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>

<221> MOD_RES

<222> (6)

<223> Naphthylala

<220>

<223> C-term amidated

<400> 55

His Gly Glu Gly Thr Xaa Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Revised 256-152div corrected in response to notice to comply.txt
Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
20 25

<210> 56
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>
<223> C-term amidated

<400> 56
His Gly Glu Gly Thr Phe Ser Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn
20 25

<210> 57
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>
<223> C-term amidated

<400> 57
His Gly Glu Gly Thr Phe Ser Thr Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn
20 25

<210> 58
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>
<223> C-term amidated

<400> 58
His Gly Glu Gly Thr Phe Thr Ser Glu Leu Ser Lys Gln Met Ala Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn
20 25

Revised 256-152div corrected in response to notice to comply.txt

<210> 59
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>
<221> MOD_RES
<222> (10)
<223> pentylgly

<220>
<223> C-term amidated

<400> 59
His Gly Glu Gly Thr Phe Thr Ser Asp Xaa Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
20 25

<210> 60
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>
<221> MOD_RES
<222> (22)
<223> Naphthylala

<220>
<223> C-term amidated

<400> 60
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Xaa Ile Glu Phe Leu Lys Asn
20 25

<210> 61
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>
<221> MOD_RES
<222> (23)

Revised 256-152div corrected in response to notice to comply.txt
<223> tButylgly

<220>
<223> C-term amidated

<400> 61
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Xaa Glu Trp Leu Lys Asn
20 25

<210> 62
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>
<223> C-term amidated

<400> 62
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Asp Phe Leu Lys Asn
20 25

<210> 63
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>
<223> C-term amidated

<400> 63
His Gly Glu Gly Thr Phe Thr Ser Asp Ala Ser Lys Gln Leu Glu Glu
1 5 10 15
Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser

<210> 64
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
Page 25

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GLP-1 agonist

<220>

<223> C-term amidated

<400> 64

His Gly Glu Gly Thr Phe Thr Ser Asp Ala Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly
20 25

<210> 65

<211> 37

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>

<221> MOD_RES

<222> (31)

<223> hPro

<220>

<221> MOD_RES

<222> (36)..(37)

<223> hPro

<220>

<223> C-term amidated

<400> 65

His Gly Glu Gly Thr Phe Thr Ser Asp Ala Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
20 25 30

Ser Gly Ala Xaa Xaa
35

<210> 66

<211> 29

<212> PRT

<213> artificial sequence

<220>

<223> Agonist of GLP-1

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Ala is modified with an R group which can be 4-imidazopropionyl
(des-amino-histidyl), 4-imidazoacetyl, or 4-imidazo-a,
adimethyl-acetyl

<220>

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<221> MOD_RES
<222> (19)..(19)
<223> Xaa is a Lys or Arg

<220>
<221> misc_feature
<222> (19)..(19)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MOD_RES
<222> (27)..(27)
<223> Lys is modified with an R group consisting of C6 -C10 unbranched
acyl, or is absent

<220>
<221> MOD_RES
<222> (29)..(29)
<223> Arg is modified with an R group consisting of Gly-OH or NH2

<400> 66

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Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln
1 5 10 15

Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
20 25

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<210> 67
<211> 19
<212> PRT
<213> artifical sequence

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Ser is modified by H2N, H2N-Ser, H2N-Val-Ser, H2N-Asp-Val-Ser. or
any one of SEQ ID NO:68 to 74

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<220>
<221> MOD_RES
<222> (17)..(17)
<223> Xaa is a Lys or Arg

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<220>
<221> misc_feature
<222> (17)..(17)
<223> Xaa can be any naturally occurring amino acid

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<220>
<221> MOD_RES
<222> (19)..(19)
<223> Arg can be modified by the group consisting of NH2, OH, Gly-NH2,
or Gly-OH

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<400> 67

Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val
1 5 10 15

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Xaa Gly Arg

<210> 68
<211> 4
<212> PRT
<213> artificial sequence

<220>
<223> variable sequence insert for artificial GLP-1 analog

<400> 68

Ser Asp Val Ser
1

<210> 69
<211> 5
<212> PRT
<213> artificial sequence

<220>
<223> variable sequence insert for artificial GLP-1 analog

<400> 69

Thr Ser Asp Val Ser
1 5

<210> 70
<211> 6
<212> PRT
<213> artificial sequence

<220>
<223> variable sequence insert for artificial GLP-1 analog

<400> 70

Phe Thr Ser Asp Val Ser
1 5

<210> 71
<211> 7
<212> PRT
<213> artificial sequence

<220>
<223> variable sequence insert for artificial GLP-1 analog

<400> 71

Thr Phe Thr Ser Asp Val Ser
1 5

<210> 72
<211> 8

Revised 256-152div corrected in response to notice to comply.txt

<212> PRT

<213> artificial sequence

<220>

<223> variable sequence insert for artificial GLP-1 analog

<400> 72

Gly Thr Phe Thr Ser Asp Val Ser

1

5

<210> 73

<211> 9

<212> PRT

<213> artificial sequence

<220>

<223> variable sequence insert for artificial GLP-1 analog

<400> 73

Glu Gly Thr Phe Thr Ser Asp Val Ser

1

5

<210> 74

<211> 10

<212> PRT

<213> artificial sequence

<220>

<223> variable sequence insert for artificial GLP-1 analog

<400> 74

Ala Glu Gly Thr Phe Thr Ser Asp Val Ser

1

5

10

<210> 75

<211> 29

<212> PRT

<213> artificial sequence

<220>

<223> artificial

<220>

<221> MOD_RES

<222> (1)..(1)

<223> neutral amino acid or D or N-acylated or alkylated form of histidine can be substituted for His

<220>

<221> MOD_RES

<222> (2)..(2)

<223> small neutral amino acid can be substituted for Ala

<220>

<221> MOD_RES

<222> (3)..(3)

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<223> acidic or neutral amino acid can be substituted for Glu

<220>
<221> MOD_RES
<222> (4)..(4)
<223> neutral amino acid can be substituted for Gly

<220>
<221> MOD_RES
<222> (9)..(9)
<223> acidic amino acid can be substituted for Asp

<220>
<221> MOD_RES
<222> (10)..(10)
<223> Tyr can be substituted for Val

<220>
<221> MOD_RES
<222> (12)..(12)
<223> Lys can be substituted for Ser

<220>
<221> MOD_RES
<222> (15)..(15)
<223> Asp can be substituted for Glu

<220>
<221> MOD_RES
<222> (16)..(16)
<223> Ser can be substituted for Gly

<220>
<221> MOD_RES
<222> (17)..(17)
<223> Arg can be substituted for Gln

<220>
<221> MOD_RES
<222> (18)..(18)
<223> Arg can be substituted for Ala

<220>
<221> MOD_RES
<222> (20)..(20)
<223> Lys can be substituted for a neutral amino acid, arg, or a D form of lys

<220>
<221> MOD_RES
<222> (20)..(20)
<223> Gln can be substituted for Lys

<220>
<221> MOD_RES
<222> (25)..(25)
<223> Trp can be substituted for an oxidation-resistant amino acid

<220>
<221> MOD_RES
<222> (28)..(28)
<223> Lys can be substituted for a neutral amino acid, arg, or a D form of lys

Revised 256-152div corrected in response to notice to comply.txt

<220>
<221> MOD_RES
<222> (29)..(29)
<223> Xaa is a Gly, Gly-Arg, Gly-Arg-Gly, or absent

<220>
<221> misc_feature
<222> (29)..(29)
<223> Xaa can be any naturally occurring amino acid

<400> 75

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa
20 25